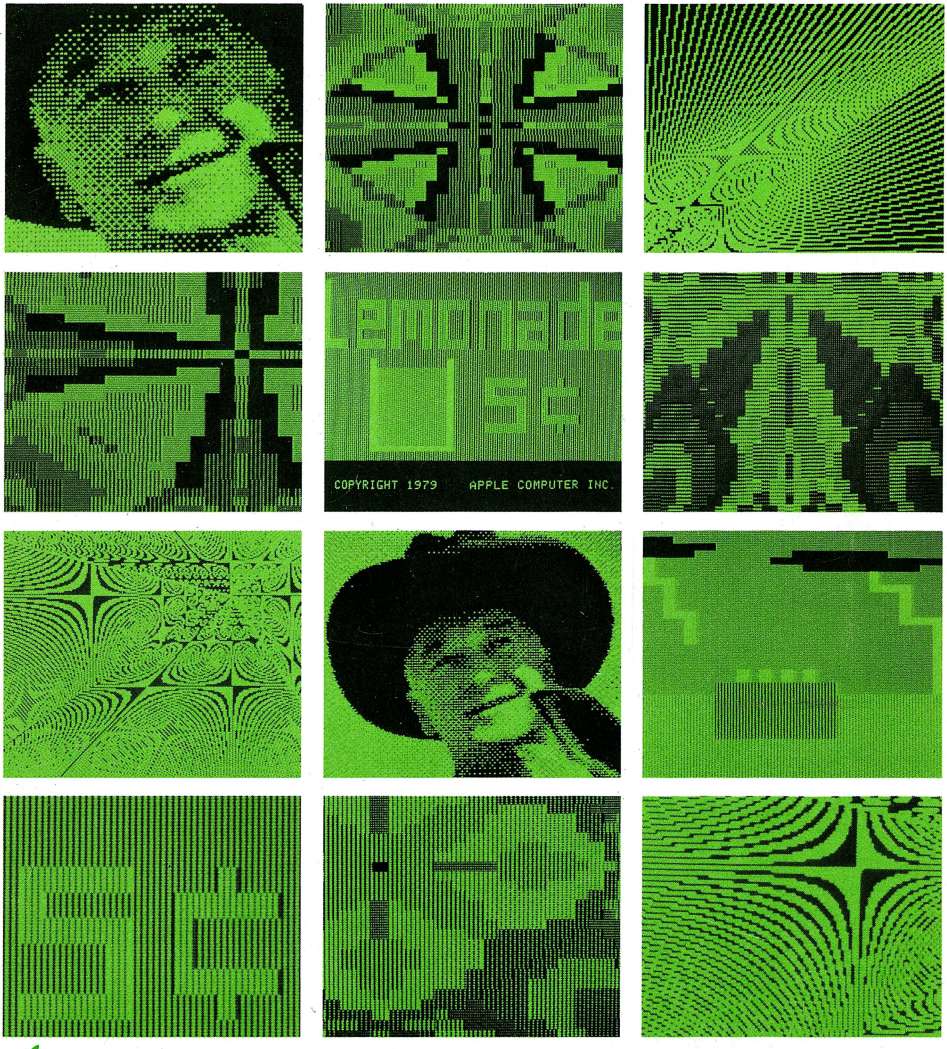
THE APPLE TAPES
INTRODUCTORY PROGRAMS FOR THE APPLE II *plus*



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THE APPLE TAPES
INTRODUCTORY PROGRAMS FOR THE APPLE II
plus

PREFACE

This booklet contains documentation for nine programs that came with your Apple II plus system. These programs illustrate some of the capabilities available to you with your new Apple. You will understand these programs better if you read The Applesoft Tutorial first, but that is not necessary to your enjoyment of the programs. To use any Apple program on cassette tape, LOAD the tape in the following manner.

The Usual Procedure for Loading Tapes

1. Make sure your computer is in Applesoft BASIC
2. Rewind the tape
3. Start the tape playing
4. Type LOAD
   After you press RETURN the cursor will disappear. Nothing happens for from five to twenty seconds, and then the Apple beeps. This means that the tape's information has started to go into the computer. After some more time (depending on how much information is on the tape, but usually less than a few minutes) the Apple beeps again and the prompt character and the cursor reappear.

4a. If you got an error message such as ERR , the tape did not LOAD properly. Turn your computer off (with the switch in the back), and begin the process again at step one.
   NOTE: You cannot recover from a LOAD error by using RESET.

5. Stop the tape recorder and rewind the tape. The information has been transferred, and you are finished with the tape recorder for the time being.

Enjoy your new Apple!

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LITTLE BRICK OUT

Submitted by: Bruce Tognazzini
Program Language: Applesoft

Is your eye sharp? Is your hand quick? The Little Brick Out game will test your reflexes. To play the game, first use the usual procedure to LOAD the tape marked LITTLE BRICK OUT. Once the tape is LOADed, type RUN and the game title and copyright notice will appear on the screen. The program itself gives you directions for playing the game. Here's one more hint. Notice that the further the brick is from the left edge of the screen, the more points you get for hitting it. You're on your own now. Have fun!

COLOR DEMOSOFT

Submitted by: Jef Raskin and Rod Holt
Program Language: Applesoft

Color Demosoft is a low-resolution color graphics demonstration program. To see the Color Demosoft program do its stuff, LOAD the tape labeled COLOR DEMOSOFT, and then type RUN . A list of options numbered one through four will appear on your Apple's screen.

This kind of list is called a "menu" and works just like a menu in a roadside cafe. If you wanted, for instance, two eggs, fried potaoes, whole wheat toast, and coffee, you could order a number 6. To use the menu, just type the number you have chosen. Press the RETURN key to stop any demonstration and return to the menu.

You may notice that the first selection is handy for setting the color on your TV. If you choose this selection, some bars of light will appear on the screen. Turn off the automatic fine tuning, and, with some adjustment of the Picture, Brightness, Color and Hue knobs, these bars of light will become sixteen bars of color corresponding to the sixteen colors that can be used for programming the Apple. The names of the colors are abbreviated below the corresponding bars.

The second option is the same as the first one except that numbers from zero to fifteen have replaced the color names that appeared below the color bars. The Apple refers to the colors by these numbers.

You'll have to figure out the third and fourth options yourself. We don't think you'll have any trouble. Why don't you try one now?

PENNY ARCADE

Submitted by: Bob Budge
Program Language: Applesoft

Have you ever played the colorful, fast-moving games that can be found in a penny arcade? The Penny Arcade program is reminiscent of those games. Four fast-moving two-person games make up the Penny Arcade program. The object of each of these games is to hit the "ball" into the other player's goal using "paddles" controlled with the game controls attached to the Apple. All four games have different kinds of obstacles and unique game boards, so although they are based on the same principles, the games vary considerably.

To play any of the Penny Arcade games, first LOAD the program from cassette tape, then RUN it. After the program announces itself, you will be asked whether or not you would like to see the instructions. The instructions tell about scoring and give other useful information. Simply answer YES if you wish to see them or NO if you already know how to play.

After the instructions, the game boards will appear on the screen, one after the other. They are, in order of appearance, Bumper Pool, Hockey, Scramble, and Tennis. To choose a game, simply press the space bar when the game board of your choice is on the screen. If you can't decide which game to play, the program will repeat the sequence of game boards until you make up your mind.

When you have chosen a game, the program asks you how difficult you would like it to be. The difficulty of a game is rated on a scale from one to ten, one the easiest and ten the most difficult. Simply type a number and press RETURN to choose a level. Then the program asks whether or not you would like gravity to be a factor. Type YES or NO and then press the RETURN key. You and your opponent should be ready with the game controls as soon as you press RETURN . The ball will come into play with no warning. Enjoy your game!

LEMONADE

Submitted by: Bruce Tognazzini
Program Language: Applesoft

You have just been elected Chairman of the Board of a chain of lemonade stands. You are charged with the responsibility of managing them to maximize the profits of these fledgling enterprises, carefully conserving your capital until they attain size and stability. You have to consider weather, political conditions, and natural calamities in planning your manufacturing and marketing strategy. Pretty tough for a six-year-old, even with a business degree!

To play Lemonade,

1. LOAD the program from the cassette.

2. Type RUN and press RETURN .

3. Answer the questions and follow the instructions that appear on the screen.

If you stop a game and wish to resume playing later, write down the number of the day and the amount of capital you have accumulated, so you can resume the game where you left off.

HOPALONG CASSIDY

Program Submitted by: Bill Atkinson
Program Language: Applesoft

This program is a good example the Apple's ability to display detailed high-resolution pictures on your monitor or color TV.

To see our screen hero on your screen,

1. LOAD the program from the cassette

2. Type RUN and press RETURN

Instructions will apppear at the bottom of the screen, then disappear after a short interval.

PHONE LIST

Submitted by: Jim Hoyt
Program Language: Applesoft

Ever wonder what happened to old so-and-so? What happened to your address book? Well wonder no more! With this useful program you can keep track of your friends' names and addresses, update them daily, and print them out any time you want--and you don't even need a disk drive.

The program will hold 15Ø names and numbers, will search for a name by word or string, will edit or delete any record, and can be used with a printer to print part or all of a file.

To start your own file,

1. LOAD the program from the cassette.

2. Type RUN and press RETURN .

3. Choose one of the seven options listed on the screen.

Some things to keep in mind:

1. When you search for a record, you can either search by word or by character. When searching by word, the program looks at the beginning of each name, and lists any name beginning with the search key (which need not be a whole word) you typed in. When searching by character, the program looks at every character of every record, and it will list any name that contains the search key. The search by character feature can be useful if you want to find, for instance, the phone numbers of all the doctors you know by searching for DR.

2. When you delete or edit a listing, only the first record with a particular name will be affected. If you have several entries under John Q Jones, only the first will be changed or removed.

3. When you turn the printer 'on' with this program, make sure the printer's power switch is turned on too. The flashing sign

    THE PRINTER IS CURRENTLY ON

only means that that the program will send signals to the printer, not that the printer's power is turned on.

4. When you wish to leave the program, use option 7 and follow the instructions. This will ensure that your file gets updated properly. If you turn off the power before your changes are saved, you will have to make them all over again.

BRIAN'S THEME

Submitted by: Brian Howard
Program Language: Applesoft

Brian's Theme demonstrates how a relatively simple program, using no fancy tricks, can produce very nice effects. This program, described on page 96 of The Applesoft Tutorial and on page 26 of the Applesoft Reference Manual, generates ever-changing "moire" patterns on the screen.

To use this program,

1. LOAD it from the cassette tape.

2. Type RUN and press RETURN .

3. Press RETURN again when the title comes onto the screen.

4. Press RESET or CTRL C to stop the program.

ALIGNMENT TEST TONE

The Alignment Test Tone tape does not contain a program. It contains a high-frequency tone with which you can align your tape recording head. If you have problems loading programs into your Apple from cassette tape, your recording head may need aligning.

It is possible that your problem loading programs from cassette tape is being caused by a mechanical malfunction. Before using this tape, check that your tape recorder is mechanically sound and your Apple is working properly. You should be aware that tapes recorded with a poorly aligned head will not work properly when played back on a recorder with a properly aligned one. Before you use the Alignment Test Tone tape, it is a good idea to LOAD any programs you may have saved with your poorly aligned recorder and then reSAVE them with a recorder that you know is working well.

You will need the following articles in order to align your tape recording head with this method:

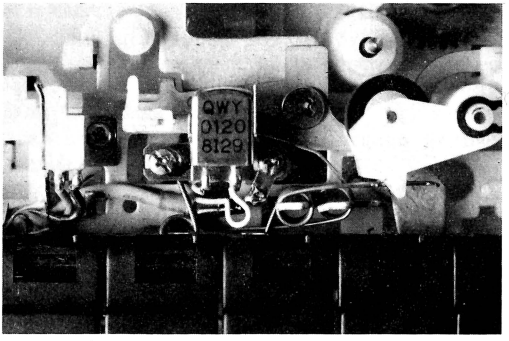
1. The Alignment Test Tone cassette tape.
2. A non-conductive surface to work on, such as a wooden table or desk. If you work on metal or any other conductive surface, you may get an electrical shock, or damage your recorder's electronics.
3. A Phillips screw driver.
4. Batteries for your cassette recorder.

The Alignment Test Tone is not a program. In fact, your Apple isn't even used in the head-aligning process. Disengage your cassette recorder from your Apple, and rewind the Alignment Test Tone tape to the beginning. Now, unplug your recorder, and you are ready to begin.

Note: Your recording head can only be adjusted to <u>approximately</u> its ideal alignment with the Alignment Test Tone. For a more accurate adjustment, your tape recorder must be serviced by a trained technician.

The head-aligning process is really quite simple. The tape is played on the cassette recorder you wish to adjust. The high-pitched sound emitted by the tape is about 5 kilohertz or five thousand cycles per second. While the tape is playing, the azimuth adjustment screw is adjusted until the sound made by the tape is at its loudest. When the sound is as loud as it will go, the recording head is adjusted properly.

Cassette tape recorders are all a little different. On some of them the azimuth adjustment screw is easy to get to, while on others (such as the Panasonic) the outside cover must be removed from the recorder in order to locate the screw. Unplug your recorder, remove the Alignment Test Tone tape, and press the PLAY button. The recording head, (the shiny metal thing, usually centered just behind the control buttons) and some other metal and plastic parts, will move forward (toward the speaker). If you didn't see this in action, press the STOP button and then press the PLAY button again, watching carefully.



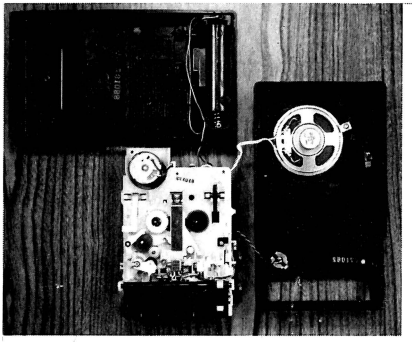
Locate the recording head in the photograph, then locate the recording head on your own tape recorder. The rounded, highly polished surface on the recording head puts recorded information on the tape. This surface should not be touched. In fact, you should avoid touching all the parts on the inside of your recorder as much as possible. Oil from your skin can ruin some of these parts, and a slip of your finger could cause delicate parts to slip out of adjustment.

On most cassette recorders, you will have to remove the plastic casing that houses the recorder in order to get to the azimuth adjusment screw. Locate the azimuth adjustment screw in the photograph. The dark area surrounding the screw is a sealant to help keep the screw from slipping out of adjustment. The sealant is probably colored red on your recorder. If you can reach the azimuth screw well enough to adjust it with a screwdriver without removing the cover, you can skip the next two paragraphs, as they deal with removing the recorder's outside casing.

To remove the casing, turn the recorder bottom-up and remove all the screws on the bottom, including the one in the battery case underneath the batteries. (The Panasonic has five screws holding the case to the inner mechanism, counting the one in the battery case.) Make sure you know which screw fits in which hole so that they won't get mixed up when

you put your recorder back together. Then gently remove the bottom casing, being careful of the wires that hold it to the inner mechanism. These wires are not very strong and some care must be taken to see that they are not damaged.

Now that the back has been removed, the handle and the top part of the casing should come right off. If they don't come off easily, look for screws on the front. Be careful not to remove any screws unless they attach the inner mechanism to the outside cover. When all the screws are out, the top casing can easily be removed. Again, be very careful of the wires. They are easily damaged. Arrange the parts of the recorder so that the inside section is laying flat on your work surface, and there is no tension on any of the wires.



Again find the azimuth adjustment screw in the first photograph. Then find the azimuth adjustment screw on your own tape recorder. Put batteries in your recorder's battery case, (wires connect the batteries to the recorder's inner mechanism), and play the Adjustment Test Tone tape. When you hear the high-pitched tone, adjust the azimuth adjustment screw with a phillips screw driver until the tone is as loud and piercing as you can make it. Put a little nail polish or white glue on the azimuth adjustment screw to help keep it from slipping out of adjustment. Don't move the recorder until the polish or glue is thoroughly dry (nail polish dries faster).

That's all there is to it. If you think you may have gotten skin oil on any sensitive part of the recorder, you can clean it carefully with rubbing alchohol and a cotton swab. Remove the tape and put your tape recorder back together, making sure to include the handle, and being very careful of the wires, of course.

RENUMBER/APPEND

Submitted by: John Crossley
Program Language: Applesoft

It doesn't seem to matter how many lines you leave open when beginning a program. Even if you space lines 10Ø line numbers apart, inevitably one program section will fill in so that there are no numbers left at all. Then the process of manually re-copying lines with new line numbers begins. ("Gosh, Dad, how come Mommy's talking bad to Apple?") An equally joyous occasion arises when, in writing a new program, you wish to use that marvelous sorting subroutine you worked out for another program. All you have to do is SAVE the new program, LOAD and LIST the program containing the sort subroutine, write out the sort routine on a piece of paper, reLOAD the new program back into your Apple, and type the sort routine into the new program, assuming there are enough empty line numbers for it. And they told you that programming was fun.

Well, it is. And here is a program that helps make it so: Renumber/Append. With this little wonder, you can renumber portions of programs, renumber entire programs, or glue one program to another (with no messy clean-up).

Note: only Applesoft programs can be renumbered or merged with this program. Another program, Integer BASIC Renumber and Append, works with Integer BASIC.

Instructions

LOAD the tape labeled RENUMBER/APPEND . If you wish to make a copy of the program, SAVE it now, before you RUN it.

Now type RUN and press RETURN . The program will identify itself and display a summary of commands. When you have read the summary, press RETURN . This will cause the program to execute.

When the Renumber/Append program is LOADed, it is stored in a special area of the Apple's memory, away from the area usually used for storing programs. This lets you LOAD your program into memory the way you normally do, without destroying either your program or the Renumber/Append program. In fact, the Renumber/Append program reserves a third area, called the Hold file, for a program that is to be merged with your program.

Renumbering a Program

Before you renumber a program, Renumber/Append must be LOADed and RUN. Then LOAD or RUN your program, to put it in memory. When your program is in memory and you see the Applesoft prompt,] , simply type & and press RETURN . The Apple will renumber your entire program: the First

(F) number will be 1Ø, and the Increment (I) between successive numbers will be 1Ø. You can also specify F and I by typing

```
& F 1Ø, I 1Ø
```

Here's what either of these these commands does to a sample program:

```
   OLD                          NEW

1  INPUT X                   1Ø  INPUT X
2  IF X < 1 THEN 1           2Ø  IF X < 1 THEN 1Ø
3  ON X GOSUB 39,87          3Ø  ON X GOSUB 5Ø,7Ø
27  END                      4Ø  END
39  PRINT A                  5Ø  PRINT A
45  RETURN                   6Ø  RETURN
87  PRINT A * A              7Ø  PRINT A * A
99  RETURN                   8Ø  RETURN
```

You need not start with 1Ø and go up by 1Ø's. If you wish to use a different First line number or Increment, just put your chosen values after the & . For example, the command

```
& F 5Ø, I 5
```

will give you

```
   OLD                          NEW

1  INPUT X                   5Ø  INPUT X
2  IF X < 1 THEN 1           55  IF X < 1 THEN 5Ø
3  ON X GOSUB 39,87          6Ø  ON X GOSUB 7Ø,8Ø
27  END                      65  END
39  PRINT A                  7Ø  PRINT A
45  RETURN                   75  RETURN
87  PRINT A * A              8Ø  PRINT A * A
99  RETURN                   85  RETURN
```

Renumber/Append can renumber part of a program as well as an entire program. For example, if you wish to renumber the section of our sample program that Starts with line 87 and Ends with line 99, and you wish the First new number to be 5Ø, use the command

```
& S 87, E 99, F 5Ø
```

This will change the program as follows:

```
   OLD                          NEW

1  INPUT X                   1  INPUT X
2  IF X < 1 THEN 1           2  IF X < 1 THEN 1
3  ON X GOSUB 39,87          3  ON X GOSUB 39,5Ø
27  END                      27  END
39  PRINT A                  3Ø  PRINT A
45  RETURN                   39  RETURN
87  PRINT A * A              5Ø  PRINT A * A
99  RETURN                   6Ø  RETURN
```

When choosing a range of new line numbers, keep this in mind: if the new range overlaps an existing range that will not be changed, both sets of lines will be interleaved, as the Apple automatically sorts lines by their numbers in ascending order.

For example, in the sample program, if you use the same command as in the last example but set the First new line number to 30 instead of 50, you will type

```
& S 87, E 99, F 30
```

This will change the program as follows:

```
  OLD                          NEW

1  INPUT X                   1  INPUT X
2  IF X < 1 THEN 1           2  IF X < 1 THEN 1
3  ON X GOSUB 39,87          3  ON X GOSUB 39,30
27  END                      27  END
39  PRINT A                  30  PRINT A * A
45  RETURN                   39  PRINT
87  PRINT A * A              40  RETURN
99  RETURN                   45  RETURN
```

The renumbered lines and the unchanged lines have now been interleaved: new 30 (old 87) precedes 39, and new 40 (old 99) precedes 45.

As the lines may not come out in the order you want, make sure that you have a copy of the original program on cassette or diskette, before trying any tricky renumbering.

The Renumber command (&) fixes line number references in these statements:

GOTO	ON...GOTO
GOSUB	ON...GOSUB
DEL	LIST
RUN	IF...THEN

It will not alter any reference that is part of a REMark statement.

Merging Two Programs

The Renumber/Append program can also be used to Merge (M) two programs, by LOADing the first program into memory, storing it in the Hold (H) file, LOADing the second program into memory, and then using the & M command. The program in regular memory can be SAVED, renumbered, or modified at will, but the program in the Hold file cannot, so if you wish to renumber or change both of the programs before merging them, do this:

1. LOAD the first program

2. Change or renumber it.

3. Put it into the Hold (H) file, by typing & H and pressing RETURN . The screen will display

   PROGRAM ON HOLD, USE '&M' TO RECOVER

4. LOAD the second program

5. Change or renumber it.

6. Merge the two programs, by typing & M and pressing RETURN .

It is often wise to save the renumbered programs under new names, before merging them. (...all the king's horses and all the king's men...) If the two programs overlap, they may be scrambled in unexpected ways. The & M command will cause all the lines in both programs to be arranged in ascending order by line number. If there are two lines with the same number, the one in the Hold file will come second in the merged version.

If you wish to retrieve a program from the Hold file into regular memory, first SAVE the program currently in regular memory. Then clear memory with the NEW command, type & M , and press RETURN .

Converting RAM Applesoft to ROM Applesoft, and Vice Versa

If you have a program written in RAM Applesoft (the kind you LOAD from cassette or diskette) and you wish to run it in ROM Applesoft (the kind on the Apple's main board or on the Applesoft II Firmware Card), you can use the Convert (C) command to change the program from one flavor of Applesoft to the other. To use this command, do the following:

1. LOAD the program to be converted.

2. Type & C and press RETURN .

3. SAVE the program.

Your program will now be converted into the flavor of Applesoft that runs on your computer.

The Convert feature may also be useful if your program doesn't RUN or LIST for some unknown reason. This sometimes happens because the program was originally loaded at some unusual memory location. You can often relocate such programs to the normal location by using the & C command.

The & C command combines the functions of CALL 54514, which changes RAM Applesoft to ROM Applesoft, and CALL 3314, which changes ROM Applesoft to RAM Applesoft, but it is more convenient because it chooses the correct CALL for you.

* * * WARNING * * *

Do not press RESET while the & , & M , or & C command is being carried out: your program will be destroyed! Wait for the Applesoft prompt] .

Syntax of Renumber/Append Commands

Every command begins with & . The first letter after & must be C , E , F , H , I , M , or S .

Renumber/Append recognizes these commands

&	Renumber a program
& H	Move a program to the Hold file
& M	Merge two programs, or retrieve a program from the Hold file
& C	Convert RAM Applesoft to ROM, or vice versa

The & (renumber) command can be followed by any or all of these parameters:

F	First new line number
I	Increment between new line numbers
S	Start of range to be renumbered
E	End of range to be renumbered

Only the first letter of a commamd or parameter is recognized. Spaces, and following letters, are ignored. Thus

```
& START 87, END 99, FIRST 3Ø, I NC 1Ø
```

is equivalent to

```
&S87,E99,F3Ø,I1Ø
```

Spaces have been inserted into our examples to make them easier to read.

Anything following a C , H , or M is ignored.

Some special rules govern the renumber parameters, F , I , S , and E.

1. Parameters are decimal numbers between Ø and 63999, inclusive.

2. If no number follows F , I , S , or E , the parameter is set to Ø.

3. Multiple parameters must be separated by commas.

4. Commas must be separated by parameter letters.

5. Multiple parameters can be in any order.

Error Messages

Sometime you may type an incorrect command, or do something else that the program does not expect. If this happens, the command you typed will not be carried out, and you will get one of the error messages explained below:

ERR NO PROGRAM IN MEMORY
This appears if you try to renumber with no program in memory. The merge command, & M , returns the program in the Hold file to memory.

ERR SYNTAX
The first letter of your command or parameter was invalid.

ERR > 63999
One of your parameters was larger than 63999, the largest possible line number in Applesoft.

ERR LINE INCREMENT = Ø
This would cause all your lines to have the same number.

ERR LINE INCREMENT TOO LARGE
The increment would cause a line to have a number greater than 63999.

ERR NO LINES IN RANGE
The range you specified was empty, so nothing was changed.

ERR OUT OF MEMORY
The operation would take more more memory than is available.

ERR DUPLICATE LINE NUMBERS
One of the new line numbers would equal one of the unchanged numbers if renumbering continued. Use a smaller Increment (I) or different First (F) line number to remedy this.

ERR LINE TOO LONG
Renumbering would make a line longer than 239 characters. Use fewer statements per line to fix this situation.

ERR HOLD FILE IN USE
Only one program can be stored in the Hold file at a time.

ERR LIMITED MEMORY, MAY DESTROY PROGRAM
CONTINUE (Y/N)?
This occurs with small systems or large programs. The Renumber command may or may not succeed. If it fails, your program will be destroyed. Any reply but Y cancels Renumber and returns to Applesoft.

Notes

Renumber commands may be included in Applesoft programs, but on execution Renumber/Append will return to Applesoft command mode and display the Applesoft prompt] .

Renumber/Append takes up about 2K bytes of memory.

Renumber/Append may take up to one minute to renumber or merge a 16K Applesoft program. Be patient, and do not hit RESET !!!

Disk II users, do not use MAXFILES while using the Renumber/Append program: DOS will write over Renumber/Append.

If you wish to check that Renumber/Append is OK, type & I Ø . If you get the error message ERR INCREMENT = Ø , Renumber/Append is probably intact.

The Hold file is a separate part of memory that can't be used by Applesoft or Renumber/Append. To maximize the amount of memory available, use the Hold file only while merging programs. If you are unable to safely renumber the program in memory because there is another one in the Hold file, SAVE both programs, then try again with the Hold file empty. It will usually work.

Copying the Renumber/Append Program

If you wish to copy the Renumber/Append program, LOAD the tape labeled RENUMBER/APPEND , then SAVE Renumber/Append onto cassette or diskette.

Do not RUN Renumber/Append before SAVEing it. Renumber/Append relocates itself to a different part of memory when it RUNs, so it can't be SAVEd afterwards.

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